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Records of the Coral Snake, *Micrurus fulvius*, in Indiana and Ohio

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The northern limit of the range of the coral snake, *Micrurus fulvius*, as defined by writers of general works on snakes, is somewhat contradictory. Schmidt and Davis (1941, p. 274), for example, state the range as "north and west to North Carolina and westward to the Mississippi River." Others (e. g., Ditmars, 1936, p. 311; Curran and Kauffeld, 1937, p. 269; Pope, 1937, p. 220; Stejneger and Barbour, 1943, p. 179) include southern Indiana and/or southern Ohio in its range. Although the early records of this species in Indiana and Ohio are known to____and questioned by--herpetologists, I undertook, at the suggestion of Dr. H. K. Gloyd, to investigate the original specimens on which they are based.

The inclusion of southern Indiana in the range of the coral snake began with a report by Andrew Johnson Bigney to the Indiana Academy of Science in 1891 (1892, p. 151-152), in part as follows:

"About two years ago a very beautiful snake was taken to the drug store of V. W. Bigney, at Sunman, Ripley county, Indiana; it having been found near Milan, in the same county. It was preserved in alcohol and a little more than a year ago it was sent to me for identification. After carefully examining it I pronounced it to be the Flaps fulvius, or bead snake, belonging to the order of the Harlequin snakes.

"A careful study has revealed some interesting facts. The order to which this snake belongs is very widely distributed In the United States it is found in Virginia, Georgia, Florida, Texas, Arizona, New Mexico, and Arkansas. ... The question naturally arises, How came it so far north? Has it ever been found in this state before? Was it carried here and escaped? I am rather inclined to the latter view.... .

"The specimen under consideration is about 25 inches long. It has more than 200 gastrosteges, which are entire, and the urosteges bifid. The anal plate is also bifid.... . The snake has seventeen bands of crimson, bordered by yellow. The occipital band is yellow and the bands on the tail also have no red. It has no loral plate, It has two

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fangs in the upper jaw, which are hollow, and on the front side there is a permanent groove; back of these fangs are small teeth....."

At the time Bigney made this report he was professor of natural sciences at Moore's Hill College, then located near Milan, Ripley county, Indiana. After graduation from Moore's Hill College, he was a graduate student at Johns Hopkins University where he later served as an assistant instructor in the department of zoology. In addition to two years at Johns Hopkins he did one year's work at Harvard and one at Syracuse, teaching at both institutions. He was later secretary and then president of the Indiana Academy of Science. When Moore's Hill College was moved to Evansville in 1919, he went along as professor of zoology and after a distinguished career as a teacher in Evansville College died November 13, 1929. All of his associates and confers, many still living, give his scientific ability the highest commendation.

Henry Foster Bain, credited with having collected the coral snake described by Professor Bigney, was a student at Moore's Hill College at the time. He later became a civil engineer and was in the Philippines when the Japanese took over. From the effects of mistreatment while imprisoned by the Japanese he died in this country in 1948, a short time before I had addressed a letter to him in an effort to learn the circumstances of his obtaining the specimen. Since it was collected in 1889, more than sixty years ago, the chance of finding a survivor who could throw light upon this incident is not good.

I recently made a visit to Evansville College in order to inspect the collection of reptiles in their zoological museum and to see if Bigney's coral snake might still be extant. I was aided in every way by the college authorities and especially by Dr. Donald Dunham, professor of biology, who entered into the spirit of our search and placed the facilities of his department at our disposal. There were many specimens, preserved in glass containers of various sizes and kinds, clean and well cared for. Although there were no labels of any sort, the specimens represented species known to be found in the region where they had been collected when the college was located at Moore's Hill. No foreign specimens were in the collection. Two searches were made through the entire lot but everything which at first somewhat resembled a sixty-year-old coral snake turned out to be something else. At last, however, back in a corner hidden behind another container, was found an old quinine bottle with the large opening stopped with a cork around which paraffin had been poured. The bottle contained a faded snake and bore a small label, 'Bead Snake.' The writing was said, by one familiar with Professor Bigney's hand,

to be his. All the natural markings on the snake could be outlined; the black spots in the red zones had persisted better than the black bands. We were able to identify it as a male *Micrurus fulvius*, but for lack of comparative material did not attempt to decide the subspecies. A severe wound in the head indicated that it had probably been killed in the wild. The head was not destroyed and both fangs were present. Measurements and scale counts made later by Dr. Sherman Minton, Jr., corresponded exactly with the account of Bigney's specimen as given by Hay (1892, p. 530), and it seems beyond serious question that we were dealing with the identical specimen.

Hay (*loc. cit.*) commented further:

"It appears wholly unlikely that this specimen was accidentally introduced where it was found. That the species is really an inhabitant of that region is rendered still more probable from the fact that another specimen was taken near there, in Hamilton county, Ohio. It is preserved in the collection of the Cincinnati Society of Natural History (A. W. Butler, . . . 1892)."

Butler (1892, **p.** 178) refers to Bigney's specimen in the collection of Moore's Hill College and continues:

"The only other evidence known to me, of the occurrence of this form so far north, is afforded by a specimen in the collection of the Cincinnati Society of Natural History, which was presented by my esteemed friend, the late Dr. John A. Warder. The record shows it to be from Ohio. Dr. Warder's home was at North Bend, and possibly this specimen came from there."

A visit was made to the museum of the Cincinnati Society of Natural History to investigate the 'North Bend' specimen mentioned by Hay and by Butler. I was cordially welcomed by the director, Ralph E. Dury, -who helped me in every possible way. The specimen was well preserved and easily identified as *Micrurus fulvius*, but carried no place label. It was much larger than Bigney's snake. Mr. Dury stated that all efforts to determine whether it had been actually collected at North Bend or had merely been given to the museum as an exhibit had failed.

Of possibly greater importance, however, is a more recent specimen, apparently from the city of Cincinnati. Mr. Dury produced for examination a male coral snake which had been picked up May 2, 1944, by two five-year-old boys in a vacant lot on Warsaw Avenue, Price Hill, in the western part of Cincinnati. The locality is on top of a hill one mile from the Ohio River. The snake had been placed alive in a glass jar and presented to a teacher in a nearby high school. It soon died, probably from suffocation, and the teacher poured alcohol in the jar. Later it was presented to the museum of the society. Efforts were made by Mr. Dury to learn of anyone who might have

had the snake as a captive but without success. A search of the area for other specimens was fruitless.

Roger Conant has recently considered this Price Hill specimen (1951, p. 204) and comments as follows:

"An isolated colony of *Micrurus* may occur in the Ohio Valley, but I prefer to take the more conservative view of considering the recently-acquired specimen as having been transported to Cincinnati by human agency. Such things do happen, for a coral snake appeared a few years ago in Philadelphia, Pennsylvania. Two boys brought a live one to the Philadelphia Zoo which they had found in a crowded section of the city. Investigation showed that it had been imported from the South in a basket of string beans! There is additional evidence to strengthen the theory of accidental introduction; the specimen found at Cincinnati years ago [Warder's, reported by Butler, *loc. cit.*] is identifiable as *Micrurus fulvius fulvius* whereas the recent one is *Micrurus fulvius tenere*."

The supposed localities of all three specimens here mentioned—Milan, Ripley County, Indiana; North Bend and Cincinnati, Hamilton County, Ohio all lie at approximately 39.07° North Latitude. North Bend is ten miles west of Cincinnati, and Milan, Indiana is twenty miles west of North Bend. If this area is truly within the natural range of this species, then these are the northernmost records. However, in view of the fact that at least some doubt exists as to the actual origin of each of the three, and in consideration of the absence of specimens or acceptable records from adjacent areas south of the Ohio River, the question of the northern limit of the range of the coral snake, west of the Appalachian Mountains, is still unsettled.

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